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CAPNOGRAPHY AS A SURVIVAL PREDICTOR IN CARDIOPULMONARY RESUSCITATION

INTRODUCTION

Capnography has become a vital part of monitoring in the pre-hospital setting because it provides information about respiratory rate, respiratory patterns and end-tidal carbon dioxide (EtCO2) values. Expired carbon dioxide reflects changes in metabolism, circulation, respiration, the airway and the breathing system. Capnography can detect the presence of pulmonary blood flow even in the absence of major pulses and also can rapidly denote changes in cardiac output, indicative of return of spontaneous circulation (ROSC) following cardiac arrest. It can also be used as a feedback to optimize chest compressions during CPR.

METHODS

In this prospective study, we examine our initial 41 cases of out-of-hospital cardiac arrest where capnography was used as a tool for cardiopulmonary status, since January 2010. The patients were intubated and measurements of EtCO2 were collected for each patient during CPR, at 0 min (1st), 11 min (2nd) and 23 min (3rd). We theorized that values less than 10 mmHg after 20 min-

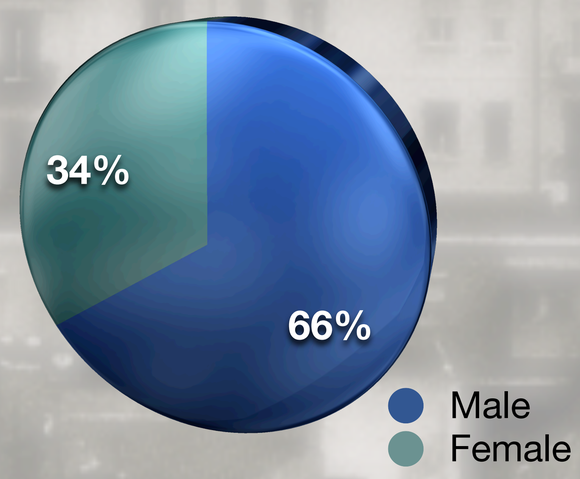
RESULTS

An obvious medical cause was found in 92.7% of the occurrences and 65.9% were male patients, with an average age of 60 years old.10 patients (24.4%) were successfully resuscitated and transported to the hospital with ROSC. EtCO2 after 20 minutes of ALS averaged 10±2 mmHg in patients who did not have ROSC and 31±2 mmHg in those who did. When asked if capnography facilitated the decision to stop CPR, 68.3% of the medical staff gave a positive answer.

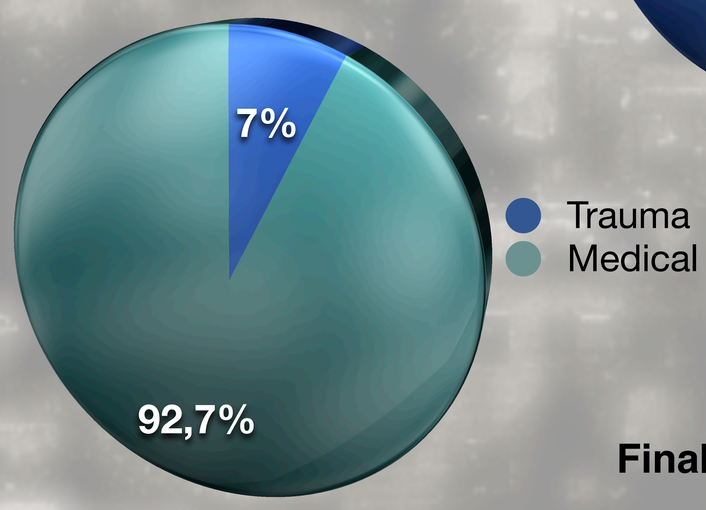
CONCLUSION

In our study, end-tidal carbon dioxide levels of more than 17±3 mmHg after 20 minutes may be used to predict ROSC with some accuracy. EtCO2 levels should always be monitored during CPR and considered a useful, noninvasive, predictor of (un)successful resuscitation from cardiac arrest which could help determine when to cease CPR efforts. This study is still ongoing and consequently these results are preliminary.

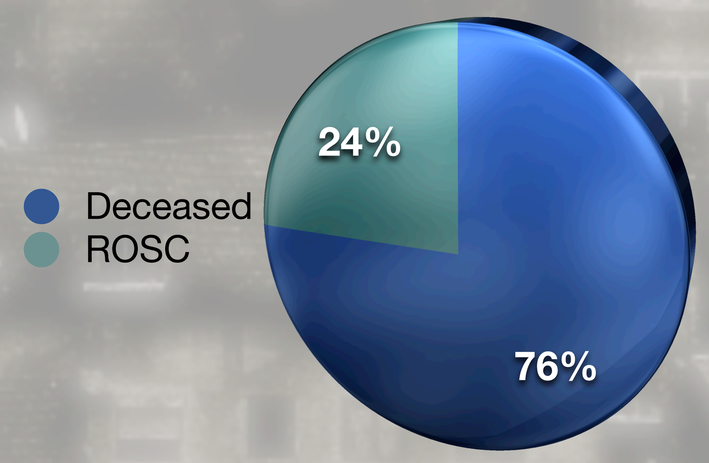
Gender Distribution



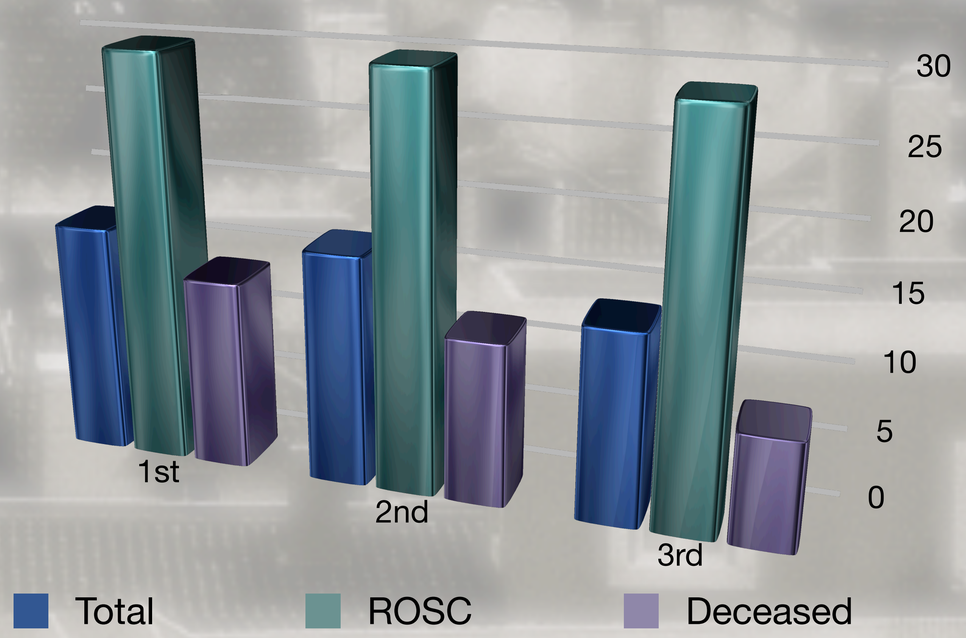
Cause of Cardic Arrest



Final Outcome



EtCO2 Measurements



"Increased emphasis on the use of capnography to confirm and continually monitor tracheal tube placement, quality of CPR and to provide an early indication of return of spontaneous circulation (ROSC)."

ERC 2010 Guidelines

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1) Levine RL, Wayne MA, Miller CC: End-tidal carbon dioxide and outcome out-of-hospital cardiac arrest. *N Engl J Med* 1997, 337:301-306;

2) Kolar M, Križmaric M: Partial Pressure of End-tidal Carbon Dioxide Predict Successful Cardiopulmonary Resuscitation - A Prospective Observational Study. *Crit Care*. 2008; 12(5)

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